REMARKS

The Examiner is requested to advise Applicants the status of Applicants' request for withdrawal of the rejection of claim 20 under 35 U.S.C. § 112, second paragraph, for the reasons set forth in the January 10, 2007 Amendment After Final Rejection. The Examiner is also requested to advise Applicants of the status of claim 34 as amended in the January 10, 2007 Amendment After Final Rejection.

Claims 17, 19, 22, 25-27 and 35 stand rejected under 35 U.S.C. § 102(b) for anticipation by U.S. Patent No. 5,439,647 to Saini; claims 18, 20, 21, 23, 24, 28 and 31-34 stand rejected under 35 U.S.C. § 103(a) for obviousness from the teachings of the Saini patent in view of U.S. Patent Application Publication No. 2002/0135780 to Budach et al.; and claims 28-30 and 36 stand rejected under 35 U.S.C. § 103(a) for obviousness from the teachings of the Saini patent in view of U.S. Patent No. 6,465,241 to Haronian et al. In response to the rejection thereof, claim 17 has been amended to further define the invention and claim 27 has been amended to improve its form. After the foregoing amendments, claims 17-36 are pending in the application.

Herein, independent claim 17 has been amended to recite that the device for the detection of at least one ligand contained in a sample that is to be analyzed includes an optical waveguide defining a single light path along which multiple detection fields and multiple radiation detectors are disposed. Each detection field includes at least one receptor for contacting a ligand to form a specific bond therewith. At least one optical source of radiation is provided for injecting excitation radiation into the waveguide. The radiation is used for exciting the emission of luminescence radiation as a function of the bonding of ligands to receptors. The device includes a semiconductor chip having said radiation receivers on a semiconductor substrate. Each detection field has at least one radiation receiver associated therewith for detecting the luminescence radiation. The waveguide is monolithically integrated with the semiconductor substrate or is in the form of a waveguide layer located on the semiconductor chip. The radiation receiver associated with each detection field is integrated into the semiconductor substrate facing the detection field directly on the back side of the waveguide facing away from the detection field.

The Saini patent does not disclose, teach or suggest an optical waveguide defining a single light path along which multiple detection fields and multiple radiation detectors are disposed, wherein each detection field includes at least one receptor for contacting a ligand to form a specific bond therewith. Rather, each embodiment in the Saini patent includes only one sensing chemistry on each light path. For example, in the embodiments shown in Figs. 1 and 2, only a single sensing chemistry (detection field) is shown disposed adjacent the respective light paths (there is no disclosure, teaching or suggestion of the function of coating 23 (see Saini patent, column 2, lines 33 and 34)). In the embodiment shown in

Figs. 3A-3H of the Saini patent, light from a light source is split into three separate paths, each of which includes only a single sensing chemistry 30a-30c.

Moreover, the Saini patent discloses taking an absorption measurement where optical detector 18 is sensitive to radiation output by the optical source (see e.g., the light path in Figs. 1A and 2A of the Saini patent). For this absorption measurement, a reference measurement is made by way of detector 16 which measures the excitation radiation sent out by optical source 14 and reflected by beam splitter 26 (Fig. 1A, to 1B) or the reflective end face 28 (Fig. 2A, 2B) to detector 16. The remainder of the excitation radiation is measured by detector 18 (see Saini patent, column 2, lines 23-27 and column 2, line 60 through column 3, line 8).

In contrast, claim 17 recites detecting a luminescence radiation produced by one or more ligand/receptor bonds in response to excitation radiation. Thus, in contrast to the Saini patent, the radiation receivers of claim 17 do not detect the excitation radiation which is subject to total reflectance at the boundary surfaces of the optical waveguide.

Accordingly, as can be seen, the Saini patent does not disclose, teach or suggest an optical waveguide having all the limitations of claim 17. Accordingly, the Saini patent cannot anticipate or render obvious amended claim 17, or claims 18-36 dependent therefrom. The Budach et al. and Haronian et al. patents do not cure the deficiencies in the teachings of the Saini patent.

Absent disclosing, teaching or suggesting a device having all the limitations of claim 17, the Saini patent cannot anticipate or render obvious claim 17, or claims 18-36 dependent therefrom.

CONCLUSION

Based on the foregoing amendments and remarks, reconsideration of the objection and rejections and allowance of claims 17-36 are requested.

Respectfully submitted,

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